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**RESULTS OF CTA
HOUSEHOLD TRAVEL MARKET SURVEY**

**Strategic Planning Department
Chicago Transit Authority**

Consultants:

**Market Opinion Research
Midwest System Sciences, Inc.**

August, 1989

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PREFACE

This report includes four papers presented at the June 1989, Metropolitan Conference on Public Transportation Research at the University of Illinois at Chicago.

These papers provide a summary of the Baseline CTA Household Travel Market Survey, one of five surveys conducted in 1988 for the Chicago Transit Authority (CTA) by Market Opinion Research (MOR) and Midwest Systems Sciences, Inc. (MSS). The four surveys that supplemented the Baseline Survey also contributed to the Marketing recommendations summarized in one of the papers.

"Key Transit Market Factors in the CTA Service Area" highlights four key transit market factors drawn from the Baseline Household Survey of both transit users and non-users. These include characteristics of infrequent transit riders; trip purpose, time of day, and geographic orientation of transit travel; mode of access and transit transfers; and household income and auto ownership.

"Developing Research-Based Marketing Strategies" outlines recommendations developed from the entire market research project, and includes an overall approach to marketing CTA services, specific marketing themes, new operational concepts to match market needs, external factors, and supporting marketing activities.

"Analysis of Mode Choice Behavior in the CTA Service Area" offers an investigation of mode choice differences (auto driver, auto passenger, CTA bus, CTA El/subway) by gender, race, number cars owned by the household, trip purpose, trip location, number of stops and time of day.

"Quality of Service Variables as factors in CTA Mode Choice" summarizes the preference and attitudinal portions of the household market survey, covering six quality of service attributes: getting to your destination quickly and on time, inexpensive to use, easy to set your own schedule, comfortable and clean, safe from crime, transportation I know how to use, and cost and availability of parking at your destination.

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**KEY TRANSIT MARKET
FACTORS IN THE CTA
SERVICE AREA**

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ABSTRACT

Major results of a recent household travel survey conducted in the CTA service area are outlined. Both transit users and non-users were covered in this random-digit-dial telephone survey. Emphasis is given to those traveler characteristics and trip differences that contribute to a better understanding of transit market segments in the City of Chicago and adjacent suburbs. This information is currently being used to define marketing strategies aimed at retaining existing CTA ridership, as well as increasing ridership in some market segments.

Four transit market factors are examined:

1. Infrequent riders.
47% of the CTA riders surveyed use transit less than five days per week. Less than 40% of these infrequent travelers are employed, and many travel at non-peak times for non-work purposes. Discretionary travel and its potential for increase within this market merits further attention.
2. Trip purpose, time of day, and geographic orientation.
Transit mode choice varies considerably by Central Area Orientation and geographic area of residence; there may also be further potential for increasing transit's share of off-peak, non-work trips, within some geographic market segments.
3. Mode of access and transit transfers.
One or more transfers are taken by a sizable proportion of all CTA riders, generally reflecting considerable flexibility in the combined bus-rail transit network. Mode of access differences (park-ride, kiss'n'ride, walk, local bus) may also indicate important market segment differences.
4. Household income and auto ownership.
Though one-quarter of all CTA riders surveyed have no car available (versus about 6% for non-riders), the average income of CTA riders is only 10% less than the average income of non-riders. CTA passengers are drawn from all household income strata.

INTRODUCTION

This paper examines a number of selected characteristics of a household travel survey conducted in May, 1988. The survey included 1653 telephone interviews drawn using a random digit dial procedure across the entire CTA service area, which covers the City of Chicago and 38 adjacent suburbs. The survey not only permits an update of the 1979 CTA Origin-Destination Survey, for those survey respondents who were in fact CTA users, but also permits, for the first time, a consistent comparison against non-riders according to similar travel characteristics. In addition, the survey provides attitudinal data regarding seven quality of service features offered by CTA bus and rail, again (for the first time) for both riders and non-riders of CTA.

Full documentation of survey results is given in reports prepared by the consultants, Market Opinion Research, Inc. and Midwest System Sciences, Inc. In this paper, several key findings are singled out for their implications regarding changing market characteristics and associated potentials for increasing CTA ridership. These survey highlights fall into three general areas. First are characteristics of the travelers themselves --- frequency of transit travel, area of residence, household income, and auto ownership. Second are characteristics of reported trips --- purpose, time of day, origin-destination patterns, multiple modes used for given trips, and transferring behavior while aboard transit.

TRAVELER CHARACTERISTICS: FREQUENCY OF TRANSIT TRAVEL

The survey established that the majority of households in the CTA service area are not only familiar with CTA service availability, but at least one household member rode CTA at least once in the week prior to the survey. As indicated in Table 1, for the 2.5 million persons aged 12 and over in the City of Chicago, one or more persons in 70% of corresponding households rode CTA in the prior week. This number fell to 27% for suburban households in the service area, and the average for the entire service area was 58%.

In contrast, the percentage of persons, rather than households, who rode CTA in the last week is surprisingly high, in a region where autos are available to 2/3 of households. The value is somewhat lower for persons, reflecting the different ratios of persons per household across the service area. The percentage of persons age 12 and over who rode CTA in the prior week was 49% within the City of Chicago, and 23% within the CTA suburbs; it was 43% across the entire service area. In smaller metropolitan areas, this measure of transit usage is often expressed as ridership in the last month or year. CTA's high share in just a week indicates a basis for optimism regarding ridership growth potentials.

Besides measuring CTA's market in terms of people rather than boardings, the most important new information provided by these survey results is that nearly as many people ride CTA infrequently

Table 1
Generalized Frequency Of CTA Travel

	Chicago	CTA Suburbs	Total CTA Service Area
1988 Population			
Age 12 and over	2,494,000	705,000	3,199,000
Percent of house- holds with persons 12+ who rode CTA past week	70%	27%	58%
Percent of persons age 12+ who rode CTA last week	49%	23%	43%
Percent of persons age 12+ who rode CTA at least 5 days last week	26%	12%	23%

as ride CTA on a regular five-day-a-week (or more) basis. This is indicated by the last entries in Table 1. Across the entire service area, 23% of all persons over age 12 were regular work commuters or frequent travelers for other non-work purposes, riding CTA 5 to 7 days per week. The remainder of CTA riders---20% of adults in the service area--rode 1 to 4 days in the prior week. The infrequent travelers in this sizeable secondary market are often traveling at off-peak times and for non-work purposes, and making a sizeable number of discretionary trips. They perhaps represent the single largest potential market for increasing transit travel in the region. This large group of travelers is already familiar with CTA, and conceivably represents a market segment that could increase its ridership, if offered appropriate incentives.

The fact that only 39% of occasional (1-4 times per week) CTA riders are employed, vs. 64% of daily riders, is also an indication of off-peak travel flexibility. Of course, unemployed persons (including retirees and housewives) have less necessity for frequent travel.

Infrequent travelers on CTA are an important market but are not as well represented in on-board rider surveys. From this telephone survey, a further breakdown of those CTA riders who travel a given number of days per week was gained (Table 2). While over 60% of very frequent riders (33% out of 53% who travel five days or more per week) travel just five days, indicating work week orientation, the remaining 47% of riders are about equally likely to ride CTA 1, 2, 3, and 4 days per week. The importance of this infrequent traveler market tends to be hidden by on-board transit rider surveys taken on any given weekday travel day; for example, only 36% of those who travel two days per week are actually captured on any given weekday, and these travelers represent only 6% of the total CTA boardings on that given weekday. This under-representation of infrequent travelers should not be allowed to mask their overall importance as a market segment.

TRAVELER CHARACTERISTICS: AREA OF RESIDENCE, AUTO OWNERSHIP, AND INCOME

The area of residence of survey respondents offers a useful index of transit propensity. That is, as indicated in Table 3, the proportion of riders vs. non-riders who reside in different major sectors of the CTA service area vary widely according to their observed extent of using transit.

For example, survey respondents living in downtown, within or near the Loop, ride transit 10 times more often than those living in the suburbs. Even within the City of Chicago, the northwest and southwest sectors of the service area show less propensity to ride transit than the north, south, and west sectors. In general, the latter are also 4-5 times more likely to ride transit than residents of the CTA suburbs. The southwest sector will by 1993 be served by a new rapid transit line, increasing the potential for further transit ridership. The relatively low transit propensity in the northwest sector is perhaps a function of the extensive opportunities for outward-bound work commuting, and travel for other purposes, to the Schaumburg-O'Hare area and beyond.

Table 2

Frequency of CTA Travel Over A
Typical Week

Number of Days Per Week Riding CTA	Percent Of CTA Riders	Percent of CTA Riders, By Frequency, Aboard on any Given Weekday	Proportion Of Total CTA Boardings On Any Given Weekday
1	14%	18%	3%
2	11	36	6
3	13	54	10
4	9	72	9
5	33	100	46
6	5	100	7
7	<u>14</u>	100	<u>19</u>
	100%		100%

Table 3
Area Of Residence of CTA Riders
and Non-Riders

	Riders	Non-Riders	Transit Propensity Factor
Area of Residence			
Chicago			
Downtown in or near the Loop	4%	1%	4.0
North Chicago	21	10	2.1
Northwest	13	13	1.0
West Chicago	5	3	1.7
Southwest Chicago	11	9	1.2
South Chicago	27	14	1.9
Suburbs	19	50	.4

In general, these transit propensity factors can both be regarded as a measure of commitment to transit presently (for the higher factors), as well as perhaps a potential for increased transit ridership, with effective marketing and service improvement, in sectors where they are lower. Distinctly different geographic market segments definitely do exist.

As is typical in other urban areas, a significant proportion of CTA's ridership is transit dependent, having no personal vehicle available for daily travel. As indicated in Table 4, 27% of CTA riders have no car, van, or truck available for use by household members. This contrast with a 6% figure for non-riders. While this is a marked contrast, it is more significant that the majority---nearly 3/4---of CTA riders do have a personal vehicle available. For example, 36% of CTA riders come from one-car households vs. 42% for non-riders. Maintaining this existing penetration of automobile-owning households is a major challenge for future CTA marketing efforts, since the number of autos per household is still on the increase nation-wide.

In parallel with these auto ownership differences between riders and non-riders, there is some tendency for household income profiles of CTA riders to be slightly lower than for non-riders. However, the median income of those reporting income among survey respondents was only about 10% less for riders than for non-riders (see Table 5). 28% of riders reported incomes below \$15,000, contrasted to 22% for non-riders. However, it is equally significant that the proportion of riders with incomes over \$40,000 (22%) is only moderately below that for non-riders (29%). Because CTA ridership is drawn from all income strata within its service area, it will be important to orient some future marketing efforts to different income segments, where appropriate. For example, it is likely that many higher-income CTA users are peak-hour commuters to the Central Area, for whom basic elements of service quality (e.g., schedule reliability, vehicle comfort and cleanliness) are particularly important in mode choice.

TRIP CHARACTERISTICS: ORIGIN-DESTINATION, TRIP PURPOSE, TIME OF DAY

Table 6 summarizes the origin and destination characteristics of trips reported by all survey respondents, both riders and non-riders. A separate tabulation is given for only the transit trips made yesterday, by riders who otherwise rode transit at least once in the past week, but who also made some auto trips the preceding day. Because the percentage distribution for trip origins and trip destinations was almost identical, they have been combined for convenience in the table. In general, comparison of these percentages between riders and non-riders is similar to that shown earlier in Table 3, in terms of propensity to ride transit. The single most important geographic market for CTA riders continues to be the downtown Chicago Central Area, involving 26% of all CTA transit trips. The market to and from downtown shows potential for growth which was explored in a special target survey conducted in December, 1988.

Actually, compared to other regions downtown transit travel represents a relatively small percentage of the total. It is a major

Table 4
Auto Ownership For CTA Riders And
Non-Riders

	Riders	Non-Riders
Number of Car/Van/Trucks In Household		
None	27%	6%
One	36	42
Two	21	32
Three or more	11	19

Table 5
Household Income For CTA Riders And
Non-Riders

	Riders	Non-Riders
Income (% of those reporting - many minors do not know income)		
Under \$10,000	16%	11%
\$10,000-\$15,000	12	11
\$15,000-\$20,000	11	9
\$20,000-\$25,000	13	15
\$25,000-\$30,000	13	11
\$30,000-\$40,000	14	14
\$40,000-\$50,000	10	15
\$50,000-\$75,000	8	8
\$75,000 and over	4	6
Median	\$24,200	\$26,800
Don't know/refused *	(42%)	(31%)

* Relatively high non-reporting includes teenagers as well as those unwilling to give their income.

Table 6

Trip Origins/Destinations for CTA Riders
And Non-Riders

	All Riders*	All Transit Trips	All Non-Riders
Where did the trip start and end?			
Chicago			
Downtown Chicago/Loop	22%	26%	9%
North	18	18	10
Northwest	11	10	11
West	5	6	5
Southwest	8	8	8
South	20	20	13
Suburbs	16	12	44

* Because this category of survey respondents includes all those who rode transit at least once in the past week, it includes some who also made separate auto trips yesterday (32% of all the trips made yesterday by this group).

Table 7

Trip Purpose for CTA Riders
And Non-Riders

	All Riders	All Transit Trips	All Non-Riders
What was your purpose for making the trip?			
Home	44%	46%	42%
Work	24	27	24
School	7	8	3
Shopping	7	6	10
Entertainment/social/eat	6	3	7
Personal business	8	7	9
Work-related business	2	1	1
Other	2	2	3

strength of the transit market in the CTA service area that nearly half (74%) of all transit trips have neither trip origins nor destinations in the Central Area, but rather in other portions of the service area. For example, the north and south sectors of the City of Chicago provide 18 and 20%, respectively, of all CTA riders and transit trips, and represent major market segments.

Table 7 indicates the trip purpose profile for all riders, transit trips, and non-riders in the survey sample. About 8-14% of all trips were non-home based (fewer for transit), meaning that they have neither an origin nor destination at home. Fewer non-work, non-school trips are made by transit as for work and school purposes (19% vs 35%), in contrast to non-rider trip purposes (30% vs 27%, respectively). A higher proportion of school trips is also carried by transit than otherwise existing among non-riders (8% vs 3%). These differences still indicate major utility of CTA transit service for multiple (and particularly off-peak) travel purposes. Trip purpose, particularly involving discretionary travel, should be further investigated in future CTA marketing research.

The time of day of CTA travel is also roughly comparable to the time of day of travel of non-riders (Table 8). 62% of CTA travel is made during the peak periods of 6-9 A.M. and 3-6 P.M., contrasted with 52% for non-riders. 24% of CTA travel is made during the mid-day, between these two peak periods, compared to 26% for non-riders. These time of day profiles again indicate the general ability of CTA service to penetrate all travel markets in proportions comparable to general travel within the service area, but with a higher peaking tendency.

TRIP CHARACTERISTICS: MULTIPLE-MODE TRIPS AND TRANSIT TRANSFERS

In Table 9, composites data appears to suggest that both park-ride and kiss-ride modes of access are important for CTA travelers. Though walking and related modes are by far the predominant access/egress mode, car/van driver was mentioned as an access/egress mode for 2% of CTA travelers. This suggests that park-ride behavior spills beyond the 9 park-ride lots specifically located at the terminal stations of CTA rail lines, to include on-street parking and selected off-street parking near these and other rail stations. Car/van passenger (kiss-ride) also represents an access mode for 1% of CTA travelers. To the extent that facilities and preferential treatment for these access modes can be improved, CTA ridership potentials might be improved.

Survey results indicate that a significant number of originating CTA trips, around 66%, involve transfers between CTA transit vehicles. For example, as shown in Table 10, well over half of all CTA trip segments (that is, individual rides on different CTA vehicles) involve bus travel. 36% of originating CTA journeys involve transfers between two or more buses. Similarly, 13% of all CTA journeys involves transfers between bus and rail. To the extent that these transferring opportunities can be improved, or otherwise be made better known to existing and potential CTA travelers, for specific trip interchanges, potential CTA ridership might be increased.

Table 8

Time-of-Day of Travel for CTA Riders
And Non-Riders

	All Riders	All Transit Trips	All Non-Riders
What time did the trip start?			
Midnight-6 a.m.	3%	3%	3%
6-9 a.m.	28	32	27
9 a.m.-12 p.m.	12	11	13
12-3 p.m.	13	13	13
3-6 p.m.	28	30	25
6-9 p.m.	12	10	13
9-Midnight	3	2	4

Table 9

Mode Of Access/Egress For CTA Trips

Mode Of Access
To And Egress From CTA (Primary or Line-Haul Routes)

Car/Van Driver	2%
Car/Van Passenger	1
Local or feeder bus	15**
access to/from rail*	
Walk***	<u>82</u>
	100%

* Includes Metra.

** An equal or higher number of feeder bus trips were also used to reach primary or line-haul bus including express bus.

*** Includes biking; to rail and primary or line-haul bus.

NOTE: The walk mode was also used to reach local or feeder bus.

Table 10

Estimated Mode Usage for Primary Transit Mode

TRANSIT MODE	Percent of Transit Trips	
	Linked ^a	Unlinked ^b
CTA bus ^c	55%	54%
CTA bus, transfer to/ from rail	12	17
CTA rail ^d	25	23
Metra rail ^e	6	4
Other bus	<u>2</u> 100%	<u>2</u> 100%

^a A linked trip is a door-to-door person-trip or journey, and may include more than one transit vehicle rides, requiring transfers. A linked trip is also known as an originating trip.

^b An unlinked trip consists of each individual transit vehicle ride comprising a linked person-trip or journey.

^c Includes bus to bus transfers, at an average rate of 1.0 transfers per originating trip.

^d Includes rail to rail transfers (including free cross-platform transfers, and A to B train transfers along the same rail line), at a rate of .9 transfers per originating trip.

^e Includes transfer to/from CTA bus or rail.

DEVELOPING RESEARCH-BASED MARKETING STRATEGIES

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ABSTRACT

Based upon market surveys conducted for the Chicago Transit Authority in 1988, several possible avenues for marketing CTA transit services are identified. In general, these marketing approaches are based upon either specific characteristics of target market segments, and/or CTA service characteristics which show a competitive advantage in relation to the private automobile, for specific segments. These potential marketing strategies are now under review at CTA, to identify the most promising options for possible implementation, and to develop marketing strategies or "themes" for promoting CTA's service advantages.

A number of different potential target market segments were derived from a baseline survey of both CTA riders and non-riders, including their assessment of quality of service characteristics, as well as surveys of Central Area-bound travelers, within Central Area travelers, and travelers at major activity centers.

Among the possible market segments with ridership increase potential, making them promising for expanded promotional/marketing activities, are infrequent CTA travelers, who otherwise make up a major portion of CTA users. Also included are Central Area travelers (for both work and non-work purposes), college/university students, rapid transit riders as distinguished from bus riders, non-work travelers to major activity centers, workers at major employment centers outside the CBD, and potentials for premium express bus service in selected corridors to the Central Area.

Overview of Research

The Chicago Transit Authority (CTA) is embarking on a marketing campaign based on results of its first-ever attitudinal and travel behavior research study conducted within the CTA service area.

This paper is based upon findings of the five market surveys conducted in 1988 for CTA by Market Opinion Research (MOR) and Midwest System Sciences, Inc. (MSS).

The entire market research project was designed to start with baseline research on the use of CTA by persons age 12 and over residing in the CTA service area, identifying the travel modes and patterns, attitudes about transportation, and demographic characteristics of both riders and non-riders of CTA. The baseline research also had as an objective market segmentation to identify segments with potential for increased ridership. These segments became the subjects for the four follow-up surveys: (1) the daytime downtown internal distribution market, (2) Chicagoans who travel from their homes to the Central Business District (CBD) for work commuting and other trips, (3) recreational visitors to large trip generator sites (museums were chosen as such sites), and (4) visitors to large employer-visitor service centers (the Rush-St. Luke's/Cook County Hospitals Medical Center was chosen as such a center).

Findings of each of the five surveys in the 1988 Market Research Project are covered in full in the five analysis reports and crosstabulations prepared by MOR and five further analysis reports prepared by MSS for CTA:

- 1. Baseline Household Market Research Survey:** Telephone survey of households in the CTA service area (Chicago and 37 suburbs) and interviews with a randomly selected sample of 1,653 persons age 12 and over, including riders and non-riders of CTA, in the week prior to interview. Interviews were conducted in May 1988, with a few in June.
- 2. Downtown Distribution Survey:** Intercept interviews with 1,835 pedestrians in the Loop, North Michigan Avenue, River North, West of the Loop (Union-Northwestern station region) and are south of the Loop north of Roosevelt and east of the river. Interviews conducted in November 1988.
- 3. Chicago CBD Traveler Survey:** Telephone interviews with 1,805 persons, screened from a random sample of 7,200 Chicago households, who made a trip to downtown Chicago in the week prior to interview. Interviews were conducted December 1-19, 1988.
- 4. Survey at Trip Generator Sites: Museum of Science and Industry, Field Museum of Natural History, Shedd Aquarium:** Intercept interviews with 575 adult visitors to the museums on Saturday and Sunday, December 10 and 11, 1988.
- 5. Survey at Trip Generator Site: Medical Center:** Intercept interviews with 543 visitors and employees to Rush-St. Luke's Hospital and Cook County Hospital on Wednesday-Friday, December 12-14, 1988.

IMPORTANCE OF RESEARCH RESULTS

The five surveys provided extensive information on attitudes towards CTA service held by travellers in the service area, including Chicago and 37 suburbs. This was the first time such quantified information was available to show what is important to riders in making a choice to ride CTA, and to describe their satisfaction with specific attributes of CTA service.

Marketing recommendations were developed from results of all five surveys. Generally, results in each survey were consistent with those of other surveys. The clearest, most consistent message was of the importance of the basic features of CTA service--quick, frequent, and reliable transportation--in the decision to choose to ride CTA. Safety, cleanliness, and comfort were of lesser importance, and low fare was of lowest importance (but still of concern!). In areas where parking is scarce and/or expensive, CTA's value is strongly enhanced.

These results, fully documented in other papers and reports, provide a strong and clear message for developing CTA's marketing strategy. The focus should be on service quality and how well CTA delivers it. Specific recommendations center on major action areas for CTA departments to follow.

Overall Marketing Recommendations*

APPROACH TO MARKETING CTA SERVICES

A successful CTA marketing approach must serve the traveler and his/her needs for transportation. The objectives of marketing are to:

- Identify services which people need and want to use.
- Design and deliver services people want to use.
- Promote services matching people's needs.

To obtain maximum benefit from this approach and to maintain credibility with the traveling public, the CTA should not promote services with poor quality, or which people do not want and which are not good values for the money. Promoting poor service is costly in terms of money spent unproductively, loss of institutional credibility, undermining the CTA's image and possibly resulting in the loss of riders.

MARKETING RECOMMENDATION: Focus Marketing on Service Improvements and Quality-of-Service Attributes Which Most Affect Mode Choice

There are opportunities to increase CTA ridership, if the CTA can improve service quality and communicate those improvements to the traveling public. CTA should focus on service quality over price with emphasis on:

- Most important attributes.
 - * Get to destination quickly.
 - * Get to destination on time.
 - * Frequent service which provides individual schedule flexibility.
- CTA's record on these important attributes should be communicated clearly and frequently, with emphasis on improvements and advantages over the competition.
- Less important attributes for mode choice (although important for rider satisfaction and public good).
 - * Improved safety and perception of safety. CTA and Chicago Police are working to improve safety. This effort must be especially well-communicated.
 - * Maintain vehicles to provide a high standard of comfort and cleanliness.
- Low CTA fare is distinctly less important than the above quality of service attributes.

MARKETING RECOMMENDATION: IMPROVE CTA IMAGE

The CTA image is based both on service quality, general system appearance and comfort (physical and psychological) in using the CTA.

- Implement an upgraded vehicle maintenance and cleaning program.
- Concentrate the above program and new vehicle assignment on specific routes to maximize visibility and impact while making certain that improvements are distributed over all major service areas.
- Maintain active program of security improvement to enhance safety and improve feeling of safety on all CTA services.
- Communicate improvements clearly and frequently.

* Frank Koppelman and Joe Schofer of Midwest System Sciences, Inc. made significant contributions to these and all following recommendations.

Specific Marketing Themes

MARKETING RECOMMENDATION: PROMOTE UNIVERSALITY OF CTA USAGE

A large share of Chicago and service area households use CTA for at least some of their trips. Many more households/individuals see the CTA as a backup if their regular means of travel is not available.

- Communicate to potential riders that "CTA serves people like you." CTA serves 70% of Chicago households and 27% of suburban service area households; this figure is 58% over the entire service area.
- Extend current program of personal endorsements to include a wide range of travelers making different types of trips. Concentrate endorsements on high usage markets.

MARKETING RECOMMENDATION: EXPLOIT CTA'S ADVANTAGE WITH RESPECT TO PARKING AVAILABILITY AND COST WHERE THESE ARE PROBLEMS

- Monitor parking cost and availability.
- Communicate CTA's advantage clearly and frequently.
- When parking costs increase, respond with CTA marketing campaign.
- Focus on the downtown area where parking availability and cost is the attribute which has the most effect on CTA choice.
- Consider potential for developing parking advantage program for promotion at other sites including O'Hare Airport.

External Factors

MARKETING RECOMMENDATION: DEVELOP PROGRAM OF INSTITUTIONAL RELATIONSHIPS TO "LEVEL THE PLAYING FIELD" FOR CTA RELATIVE TO CAR TRAVEL

- Work with downtown businesses and governmental agencies to obtain subsidies for transit users which balance free or low-cost parking subsidies for car users. Employers and other establishments provide free, convenient parking for 40% of car trips to the downtown area.

- Work with operators of major employment centers to identify opportunities for provision of CTA services at lower cost than the provision of free parking.
- * Focus on sites where CTA service is good.
- * Focus on travelers who can use direct 'L'/subway or bus (no transfer) service.

New Operational Concepts to Match Market Needs

MARKETING RECOMMENDATION: DEVELOP AND MARKET PREMIUM SERVICES

There is considerable evidence that travelers not currently using CTA would use CTA if it were to provide very high-quality services even at a premium price. CBD travelers responded enthusiastically to a premium quality and high price express bus service (15% stated they would definitely use such a service.)

- Develop and market a premium express bus service for travel to the CBD from areas not currently served by direct 'L' or express bus service.
- Service design should include high travel speed, guaranteed seating, on-time reliability, frequent schedules during peak period, and a premium fare.
- Implement service in selected test markets and carefully evaluate service delivery and promotion, public awareness and ridership patterns.

MARKETING RECOMMENDATION: DIFFERENTIATE CTA FARES BY SERVICE TYPE

CTA's marketing objective is to increase both ridership and revenues. Differentiating fares by service type provides the potential to increase revenues while maintaining or increasing ridership. Fare differentials should be based on:

- Quality of service. Travelers appear willing to pay higher fares for better service. Such service distinctions can be based on overall higher quality such as with a premium express bus service, higher speed such as the 'L' system relative to buses, etc.
- Time of day (peak/off-peak). Travelers during the peak period may obtain greater benefits and be willing to pay higher fares than travelers at other times. A peak period differential might shift some of the peak period travel to less congested time periods (18% of peak period travel to the downtown is for purposed other than work, and might be amenable to shifting to the off-peak if the fare is lowered.)
- Communicate fare advantages to each market segment which benefits from the differential.

Marketing Activities

MARKETING RECOMMENDATION: IDENTIFY SPECIALIZED MARKETS IN WHICH CTA MAY PROVIDE SERVICES WHICH SPECIFICALLY RESPOND TO TRAVEL NEEDS

- **Downtown Circulation:** There is an increased market for downtown circulation if service were faster. This applies both to present bus circulator service, and those internal bus routings that would continue to serve this function, even if a major capital investment were made in a separate circulator system (such as light rail streetcars). Design highly visible services, work with City to improve CTA speed and reliability. Consider:
 - * Distinctive visual identification of downtown buses and stops.
 - * Exclusive and priority lanes, traffic signal priorities, and more aggressive parking enforcement.
 - * Increased frequency on selected routes.
 - * Lower fare for downtown circulation.
 - * Marketing campaign to increase awareness of distributor and circulation service.
- **Major Generators and Special Events:** Work with management of attraction sites and special events organizers to design CTA service responsive to specialized travel needs. Undertake joint promotion.
 - * Develop special joint promotional schedules and maps.
 - * Distribute material at hotels, visitor centers and event sites.
 - * Improve visibility, safety and convenience of drop-off and pick-up locations.
 - * Assure high-quality service (fast and frequent).
 - * Exploit potential to attract new riders to CTA for more routine travel.
 - * Consider routes which connect with Metra stations, park-and-ride lots, hotels.
 - * Consider joint promotions with Metra and/or Pace.
- **Marketing existing and new express bus services as distinct services focusing on high quality (assure that high quality is being delivered), express/non-stop service, reliability and comfort.**

MARKETING RECOMMENDATION: MARKET THE 'L'/SUBWAY/RAIL, LOCAL BUS AND EXPRESS BUS AS SEPARATE PRODUCTS

The 'L'/subway has a better service image than the bus. Express bus has the potential to obtain a higher-quality service image.

- Promote 'L'/subway as a distinct service. Some of the read, relax, get-to-destination quickly messages being used to promote commuter rail may work for 'L'/subway and express bus but not for local bus.

MARKETING RECOMMENDATION: IDENTIFY TARGET MARKETS IN WHICH CTA HAS ADVANTAGES AS INDICATED BY EXTENT OF CTA USAGE

- Trips to downtown and near downtown:
 - * Maintain and improve quality of service focusing on travel time, reliability and frequency.
 - * Improve collection and distribution for CTA 'L' system.
 - * Develop downtown-oriented marketing activities including:
 - * Director promotion sites (e.g., tenants of major development projects).
 - * Radial maps to downtown.
 - * Cost advantage comparisons and examples.
 - * Monitor and capitalize on parking problems.
- Other high use markets:
 - * Blacks use CTA more than all other racial groups but are less satisfied with the service. Investigate reasons for poor CTA ratings and taken remedial action where feasible.
 - * Women use CTA service more than men but are somewhat less satisfied with service than men and rate CTA safety much lower than men. Continue to improve CTA safety.
 - * Households with low car ownership.

MARKETING RECOMMENDATION: PROVIDE MORE INFORMATION TO MAKE CTA EASY TO USE

- Radial maps with CBD as focus.
- Downtown circulation maps/schedules.
- Special labeling for downtown circulator buses.
- Maps/schedules specifically for large non-CBD trip generator sites -- museums, parks, stadiums, medical centers, large employment sites.

- Other maps/schedules.
- Advertise/publicize new services and service improvements.

MARKETING RECOMMENDATION: CONTINUE ON-GOING MARKET RESEARCH PROGRAM

On-going market research provides CTA with the understanding of its markets necessary to maintain and improve service delivery and develop effective marketing programs. Objectives of on-going market research include:

- Monitor service quality and satisfaction of riders, by line, to identify improvement or deterioration in service delivery.
- Monitor service perceptions of non-riders to identify actions to attract non-riders to CTA use.
- Test and evaluate new service and marketing concepts.
- Identify marketing problems and opportunities.

Conclusion

Market research data have proved useful in defining specific actions to attract new ridership and revenue. CTA plans to carry out the best of these recommendations, and will evaluate the progress of each new program.

ANALYSIS OF MODE CHOICE BEHAVIOR IN THE CTA SERVICE AREA

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ABSTRACT

Results of a 1988 random-digit-dial telephone survey of travelers residing in the CTA service area are summarized. This review of the basis for traveler mode choice as revealed in the survey focuses on both (a) demographic characteristics of travelers and (b) trip characteristics. Results are based on full interviews with 1,543 individuals in the service area. They made an average of 2.2 door-to-door trips per person per day.

Travel analyzed within the service area occurred on one of four modes: auto driver, auto passenger, CTA bus, and CTA L/Subway. Mode use among these four choices was examined by gender, race, and number of cars owned by the household. Transit's penetration into the travel market was greater for females, for blacks than for whites/others, and for people with one or no cars available. However, even among households with high automobile ownership, travelers reported substantial transit use. Throughout the CTA service area, 43% of adults had ridden CTA in the previous week.

The distribution of mode usage was analyzed in relation to trip purpose, trip location, number of stops in the tour (door-to-door trip), and time of day. CTA ridership was more likely for trips to/from work or school, for trips to/from the Chicago Central business district, trips with a single stop, and trips during the peak periods of travel. Given relative success in serving those markets, there may be a potential for increased CTA travel targeted to non-work/school, non-CBD, multi-stop, and off-peak trips.

INTRODUCTION

The 1988 Baseline CTA Household Travel Market Survey was analyzed with regard to factors affecting mode choice behavior. Factors involving both trip-maker characteristics (gender, race, car ownership) and trip characteristics (purpose, location, number of stops, time of day) were both considered. Differences among these factors offer a guide to understanding the potential for increased ridership among different market segments.

Insight into the use of CTA or alternative means of transportation can be obtained by observation of the specific trips of each traveler. The 1,543 individuals included in this analysis reported a total of 3,441 separate trips for an average of 2.2 trips per person per day. A number of these trips are excluded

from the following analyses due to choice of a mode other than auto or CTA; missing ratings for bus, el or auto; or missing data about trip characteristics. A rigorous screening approach was used to minimize difficulties in using or interpreting the data for mode choice analysis.

The relationship between demographic characteristics of corridor travelers, trip characteristics and mode used was analyzed. The CTA carries 38.3% of all trips reported by survey respondents. For the purpose of this study, we exclude trips by Metra, walk, bike and taxi, which are presumably not readily served by CTA. Thus, we consider the following modes:

- * Auto
 - * Auto as driver
 - * Auto as passenger
- * CTA
 - * Bus
 - * El/subway

Analysis based on these modes takes account of the different motivations which may influence auto users, depending on whether they drive or ride as passengers, and differences among CTA users, depending on whether they use bus or el.

First, we observe the overall distribution of mode choice. Table 1 indicates the overall proportion of travelers using each of the modes identified. After deleting trips made by modes other than CTA bus or el or auto (e.g., Metra, walk, bike, taxi), a large share of trips in the service region are made by CTA.

MODE CHOICE DISTRIBUTION AND PERSONAL CHARACTERISTICS

Next, we examine the distribution of mode usage associated with different personal or traveler characteristics. These are gender, race and number of cars owned by the household. Table 2 shows the mode distribution for males and females. Males are much more likely than females to drive alone, while females are more likely than males to be auto passenger or bus riders. Both are about equally likely to use the el. The differences in mode usage between males and females are large enough to include in later analyses.

TABLE 1

OVERALL MODE CHOICE PROPORTIONS

Mode	Percent Share
•Auto	56.5%
-Auto as driver	44.0%
-Auto as passenger	12.5%
•CTA	43.5%
-Bus	31.5%
-'L' / subway	12.0%

N=1931

TABLE 2

MODE CHOICE PROPORTIONS BY GENDER

Mode	Percent Share	
	Male N = 819	Female N = 1113
•Auto	60.1%	53.8%
-Auto as driver	51.0%	38.8%
-Auto as passenger	09.1%	15.0%
•CTA	39.9%	46.2%
-Bus	27.5%	34.4%
-'L' / subway	12.4%	11.8%

Males: More likely to drive alone

Females: More likely to be auto passengers or bus riders

Table 3 shows the mode distribution for Blacks and for Whites/others (Others are included with Whites in a single group, as the other group is small and its ridership characteristics are much closer to Whites than to Blacks). This table indicates large differences in travel characteristics between Blacks and Whites/others. Blacks are much more likely to use CTA (especially bus), while Whites are much more likely to use auto, especially as a driver. The differences in mode usage between Blacks and Whites/others are large enough to include in later analyses.

Table 4 shows the mode distribution for respondents with different numbers of cars in their households. This table indicates large differences in mode choice behavior among individuals in households with different levels of automobile ownership. Person in zero-car households are effectively captive users of the CTA. Only ten percent of their trips are by auto, about equally split between driver (presumably using a borrowed auto) and passenger. Most of the CTA trips (seven out of nine) are by bus. For persons in households with cars, the percentage of CTA bus use is much higher for persons in one-car households than persons in multi-car households, while el use is about the same for both groups.

The analysis of demographic characteristics and mode usage indicates some clear patterns of mode usage in the CTA service area. That is, transit is used more extensively by females than by males, by Blacks than by Whites/others, and by people with low or no car ownership. Further, other analyses conducted with this data indicate that the difference in transit use by gender and race is partly due to differences in resources (cars in the household) and partly to a different level of acceptance of transit use. However, even among households with high levels of automobile ownership, there is substantial transit use in the CTA service area. This broad usage of CTA services indicates the importance of these services to a wide range of people, and the potential to attract a diverse group of people to additional transit use in the CTA service area.

MODE CHOICE DISTRIBUTION AND TRIP CHARACTERISTICS

Finally, we examine the distribution of mode usage with trip characteristics. These include trip purpose, trip location, number of stops in the tour and time of day. Table 5 shows the association of travel mode with trip purpose, where trip purpose is categorized into home based work or school (HBW/S) and all other trips. There is substantially greater CTA usage for HBW/S than for other trip purposes. Further, among CTA users, El/subway ridership is a much larger share for HBW/S than for other trips. And among auto users, the proportion of passengers is lower for HBW/S trips than for other trips.

Table 6 shows the association of travel mode with location of the trip, defined by whether either the origin or destination or both are in the Chicago Central Business District (CBD). This division is used because a large portion of CTA service, especially el/subway service, is oriented toward the CBD. There is substantially greater CTA usage for CBD trips than for trips between other locations. The CTA share is larger for CBD-oriented trips than for any other group considered up to this point. Also, the share of auto users who are passengers (one in four) is larger for CBD-oriented trips than for other trips.

TABLE 3

MODE CHOICE PROPORTIONS BY RACE

Mode	Percent Share	
	Blacks N = 638	Whites/Others N = 1294
•Auto	43.6%	62.9%
-Auto as driver	30.6%	50.6%
-Auto as passenger	13.0%	12.3%
•CTA	56.4%	37.1%
-Bus	43.1%	25.7%
-L' / subway	13.3%	11.4%

Blacks: Much more likely to ride CTA (especially bus)

Whites: Much more likely to drive alone

TABLE 4

MODE CHOICE PROPORTIONS BY CAR OWNERSHIP

Mode	Percent Share		
	No Cars N = 325	1 Car N = 785	2+ Cars N = 790
•Auto	10.3%	51.8%	71.5%
-Auto as driver	5.5%	48.9%	55.9%
-Auto as passenger	4.8%	12.9%	15.6%
•CTA	89.7%	38.2%	28.5%
-Bus	69.8%	28.3%	17.8%
-L' / subway	19.9%	09.9%	10.7%

No Car: Primarily captive users of CTA and heavy users of bus

More Cars : Less use of CTA (especially bus)

TABLE 5

MODE CHOICE PROPORTIONS BY TRIP PURPOSE

Mode	Percent Share	
	Wk/School N = 1013	Other N = 918
•Auto	49.6%	64.1%
-Auto as driver	40.1%	48.3%
-Auto as passenger	09.5%	15.8%
•CTA	50.4%	35.9%
-Bus	35.1%	27.5%
-'L' / subway	15.3%	08.4%

Work/School: More CTA (both bus and 'L')

Other: Higher average car occupancy

TABLE 6

MODE CHOICE PROPORTIONS BY TRIP LOCATION

Mode	Percent Share	
	CBD N = 563	Not CBD N = 1368
•Auto	30.0%	67.5%
-Auto as driver	22.5%	52.9%
-Auto as passenger	07.5%	14.6%
•CTA	70.0%	32.5%
-Bus	42.2%	27.0%
-'L' / subway	27.8%	05.5%

CBD Trips: Much higher CTA usage (both bus and 'L')

Table 7 shows the relationship between mode usage and number of stops on the "tour", where a tour is a set of sequential trips beginning and ending at home. The sample is divided into groups which make only one stop away from home, and groups which make two or more stops away from home on a single tour.

People making two or more stops are far more likely to use auto as both drivers and passengers, and far less likely to use transit, than people who make only one stop. These data must be interpreted with some care as it is likely that the association between number of stops and mode is bi-directional. That is, people who wish to make multiple stops are more likely to choose to travel by auto, and people who travel by auto have a greater ability to increase the number of stops they make. Nonetheless, this relationship indicates greater difficulty for CTA in competing with private auto in serving trips on tours with multiple stops.

The last distribution to be examined (Table 8) is the relationship with time of day, where the peak periods (6-9 A.M. and 3-6 P.M.) are treated separately from the rest of the day. CTA usage for both bus and el is higher for peak than for off peak trips.

SUMMARY

The pattern of mode usage with respect to trip characteristics is much as we would expect. CTA ridership is higher for trips to or from work or school, for trips to or from the CBD, for trips with a single stop and for trips during the peak periods. While each of these factors operates independently, they are also interrelated, since a large fraction of trips to work or school, for example, are made to the CBD, are made with a single stop and are made during the peak periods. Trips in each of these groups are primary markets for CTA service and are apparently well served. There may be a potential for substantial increased CTA travel if service can be targeted to non-work/school, non-CBD, multi-stop and off peak trips.

TABLE 7

MODE CHOICE PROPORTIONS BY NUMBER OF STOPS

Mode	Percent Share	
	1 Stop N = 1476	2 + Stops N = 455
•Auto	52.5%	69.8%
-Auto as driver	41.2%	53.3%
-Auto as passenger	11.3%	16.5%
•CTA	47.5%	30.2%
-Bus	34.1%	22.8%
-'L' / subway	13.4%	07.4%

Single Stop: More CTA use (both bus and 'L')

Direction of causality may be stops to mode or mode to stops

TABLE 8

MODE CHOICE PROPORTIONS BY TIME OF DAY

Mode	Percent Share	
	Peak N = 1044	Off Peak N = 888
•Auto	52.4%	61.3%
-Auto as driver	41.4%	46.9%
-Auto as passenger	11.0%	14.4%
•CTA	47.6%	38.7%
-Bus	34.3%	28.2%
-'L' / subway	13.3%	10.5%

Peak Period: Higher CTA usage (both bus and 'L')

**QUALITY OF SERVICE VARIABLES AS FACTORS
IN CTA MODE CHOICE**

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ABSTRACT

Results of the preference/attitudinal portions of a random-digit-dial telephone survey of travelers in the CTA service area are summarized. Respondents were asked to rate CTA bus, L, and private auto for six quality of service attributes: getting to your destination quickly and on time, inexpensive to use, easy to set your own schedule, comfortable and clean, safe from crime, transportation I know how to use, and cost and availability of parking at your destination.

Rating differences between modes for different population and travel groups (riders vs. non-riders, city vs. suburban residents, blacks vs. whites/others, and males vs. females) were examined. These comparisons added insight to the finding that CTA was given relatively poor ratings relative to auto on all the rated attributes except for parking. The high levels of ridership on the CTA must consequently be attributable to basic travel time and convenience differences, and other attributes not included in these ratings, in addition to avoidance of parking cost.

A statistical analysis was also undertaken to estimate a mode choice model which gives the probability of a traveler choosing each of the available modes. This model includes measures of the characteristics of the modes, for each of the quality-of-service variables, and measures of the travelers multiplied by coefficients which reflect their importance in the choice of mode. This approach permitted an analysis of the effect of changes in these attributes to be analyzed in terms of estimating the change in CTA bus and L ridership. "Transportation I know how to use", "getting to your destination quickly", "easy to set your own schedule", and "safe from crime" were found to have a measurable affect on mode choice. However, "inexpensive to use" and "clean and comfortable" do not appear to have any positive effect on mode choice. Quantitative results of these analyses are presented.

RATINGS OF CTA BUS AND EL AND PRIVATE CAR

Respondents to the 1988 CTA Household Travel Market Survey were asked to rate CTA bus and el and private auto by giving a rating of zero (poor) to ten (excellent) for the following six attributes:

Getting to your destination quickly and on time.....(ON TIME)
Inexpensive to use.....(INEXP)
Easy to set your own schedule.....(SCHEDULE)
Comfortable and clean.....(CLEAN)
Safe from crime(SAFE)
Transportation I know how to use.....(KNOW)

They also were asked to rate auto on:

Cost and availability of parking at your destination.....(PARK)

The average rating for each mode is shown in Figure 1. CTA bus and el are rated similarly on all attributes and both are rated much lower than auto on all attributes except "inexpensive to use," where they are rated only slightly lower than auto. The lowest CTA ratings are for "comfortable and clean" and "safe from crime." CTA was assigned a rating of eight by the survey team on "cost and availability of parking" to represent the absence of any difficulties associated with parking for CTA users. The lowest auto ratings are for "inexpensive to use" and "cost and availability of parking".

It is useful to examine ratings differences between modes for different population and travel groups. To make these comparisons clearer, we combined the bus and el ratings by averaging them into a composite CTA rating.

The difference in ratings between CTA and auto is shown in Figure 2. This illustrates the extent to which travelers rate CTA as a less good means of travel than private auto. It is noteworthy that all of the CTA ratings were at or above average.

The most negative differences (most unfavorable to CTA) are for "set your own schedule", "comfortable and clean", and "safe from crime". The smallest difference is for "inexpensive to use" and there is a positive difference for "cost and availability of parking". That is, there are fewer parking problems when traveling by CTA than by auto. These results suggest that ridership on the CTA occurs despite average ratings, relative to auto, on all the rated attributes except for parking. Choice of CTA must be attributable to the importance of parking cost and availability or other reasons (such as travel time savings and convenience) not included in these ratings.

We get some additional insight by comparing the ratings differences for different groups of travelers. Figure 3 shows that CTA riders are somewhat more positive about differences in CTA-Auto ratings, although both groups still rate CTA lower on all attributes except "cost and availability of parking". Of course, one would expect that travelers who rate a service higher are more

FIGURE 1.

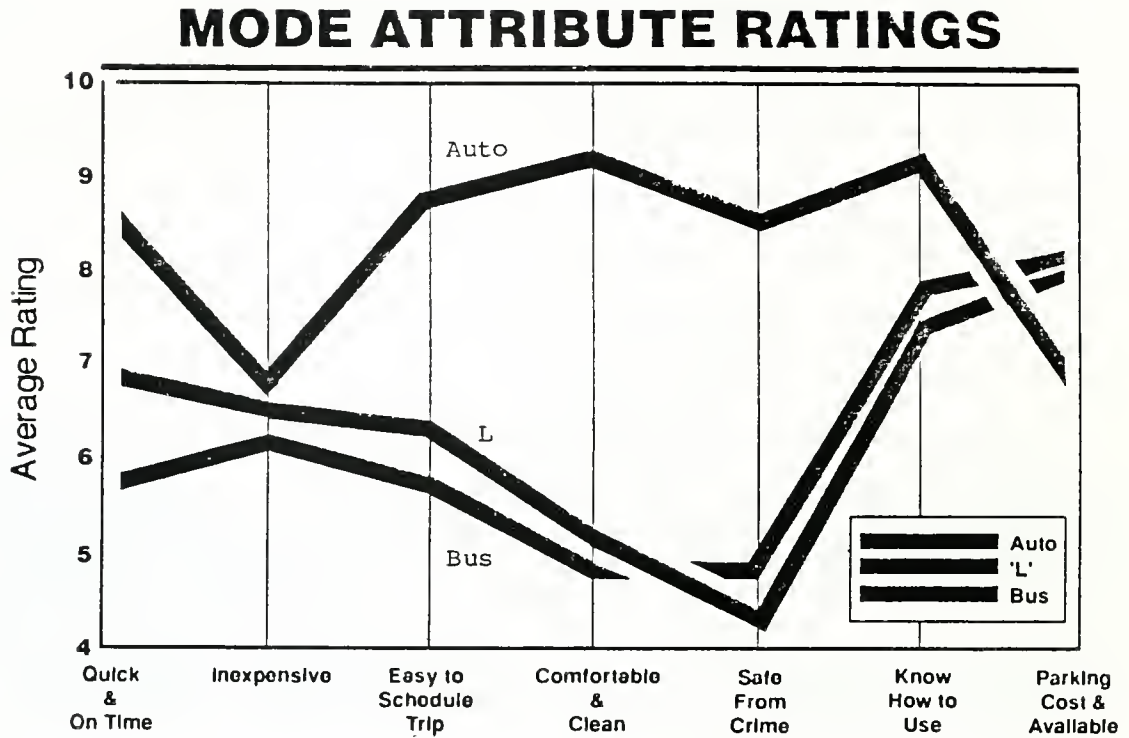


FIGURE 2.

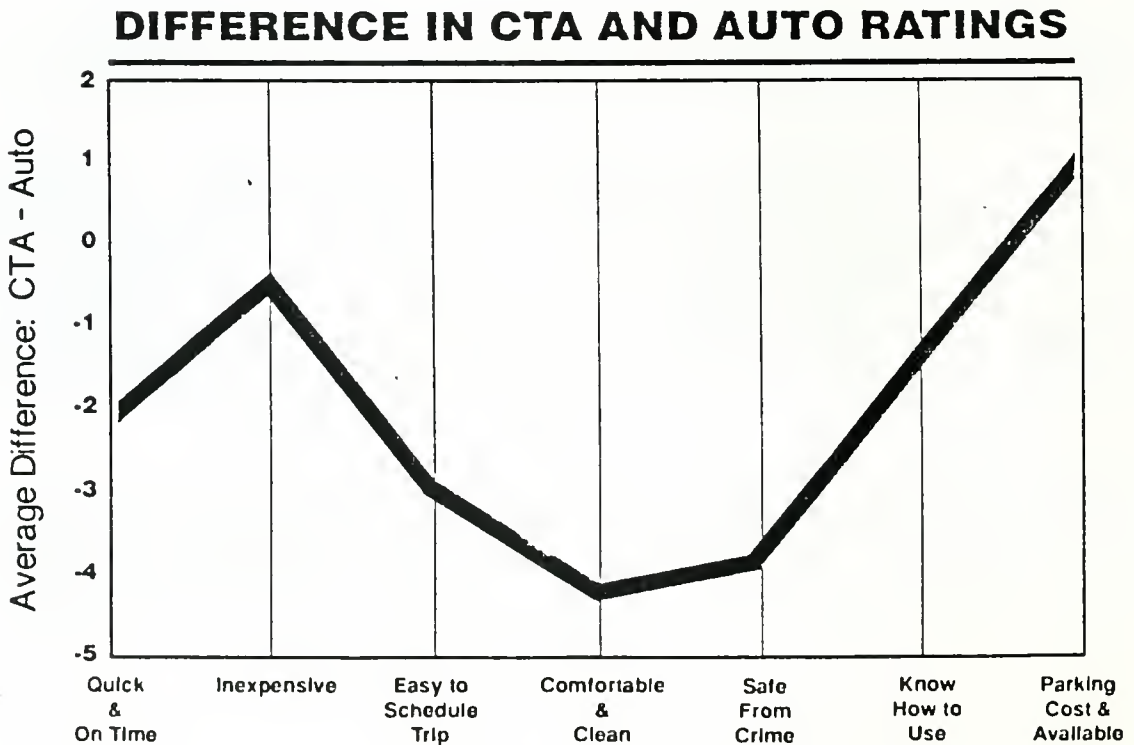


FIGURE 3. RATINGS DIFFERENCES

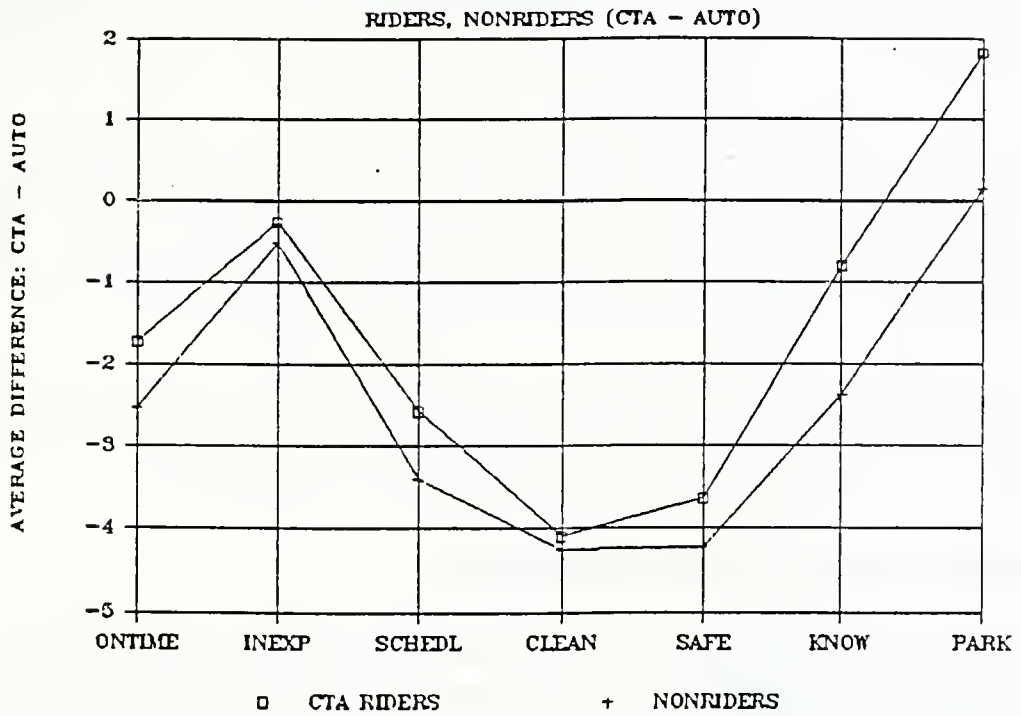
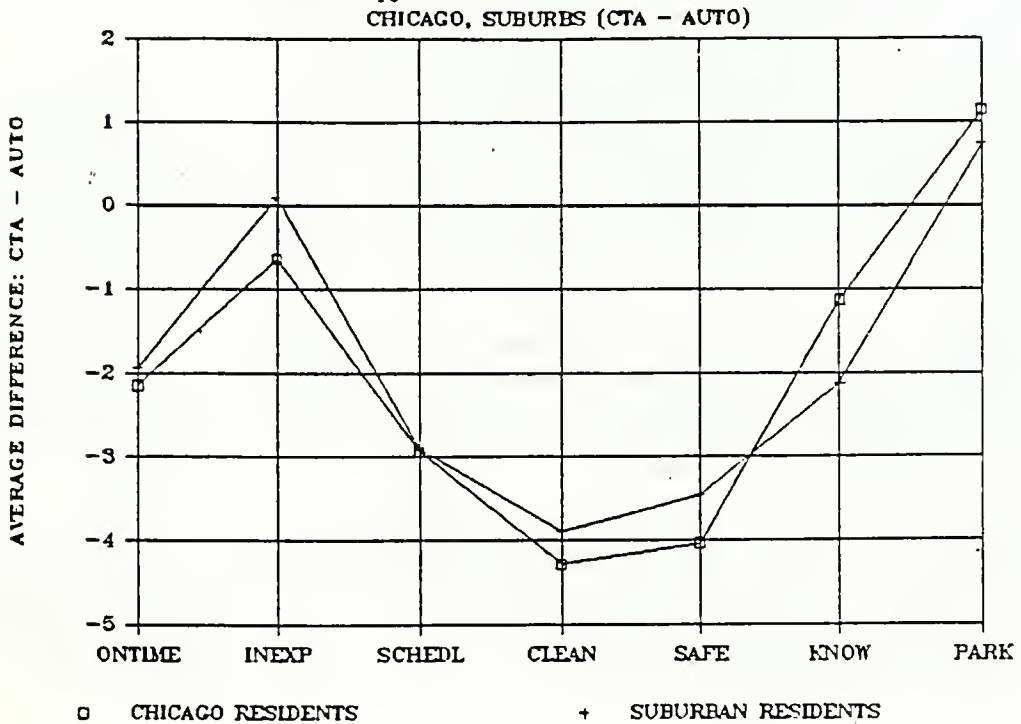


FIGURE 4. RATINGS DIFFERENCES



likely to use it. The implication is that because CTA offers a major accessibility/mobility advantage for many riders (such as a relatively quick trip to the CBD), other features regarded as less attractive are still tolerated. There may also be a further implication that non-users have an incorrectly negative image of CTA service.

Figures 4, 5 and 6 show contrasts in rating between groups based on residence, race and gender. In each case, the group which includes more CTA users and which is more likely to have knowledge of CTA service rates CTA more negatively relative to auto than the comparison group. This result is disturbing as it suggests that the population groups which are the most natural market for future CTA ridership have the poorest image of key aspects of CTA service quality.

The pattern of average CTA ratings relative to auto raises broad concern about the perceived quality of CTA service with respect to the rated attributes. The next section examines the importance of different attributes in the choice of CTA bus or el relative to auto as a driver or passenger.

DETERMINANTS OF TRAVEL MODE CHOICE

Individual travelers choose their means of travel based on their perceptions of service quality, the importance they place on different service attributes and their personal preferences and situational characteristics. This section investigates the quality-related determinants of bus, el and auto (both driver and passenger) mode choice and the relative importance of each determinant.

The first step in this process was to separate travelers who have a full range of choices from those who do not and to eliminate the latter from detailed analysis. We use household automobile ownership as a proxy for having a choice and classify travelers into transit captives (no cars in the household) and choice travelers (one or more cars). The mode shares for trips made by different auto ownership groups were reported earlier.

Of necessity, if not by choice, captives (persons with no cars in their household) make all or most of their vehicular trips by CTA. Further, a very large fraction of these trips (almost 80%) are made by bus, reflecting the broader geographic coverage of the bus system. It is also important to recognize that the CTA ridership share reported at the beginning of this section (43.5%) does not reflect the share of CTA ridership among choice travelers. Thus, any long term changes which reduce the proportion of transit captives in the travel market are likely to erode total CTA ridership.

The balance of this section concentrates on the behavior of choice travelers. An increase in short term CTA revenues and ridership will require actions which increase CTA share among this group of travelers. Further, it is likely that the same actions will lead to the retention of CTA ridership among captives who acquire the resources to travel by auto in the future.

To identify the quality-related factors which influence choice of CTA bus or el rather than auto, we compare each traveler's mode choice statistically with his/her personal and trip characteristics and his/her ratings of travel service attributes for bus, el and auto. This analysis will determine the extent to which the ratings of each attribute and differences in personal or trip characteristics influence mode choice.

FIGURE 5. RATINGS DIFFERENCES

BLACKS, WHITES/OTHERS (CTA - AUTO)

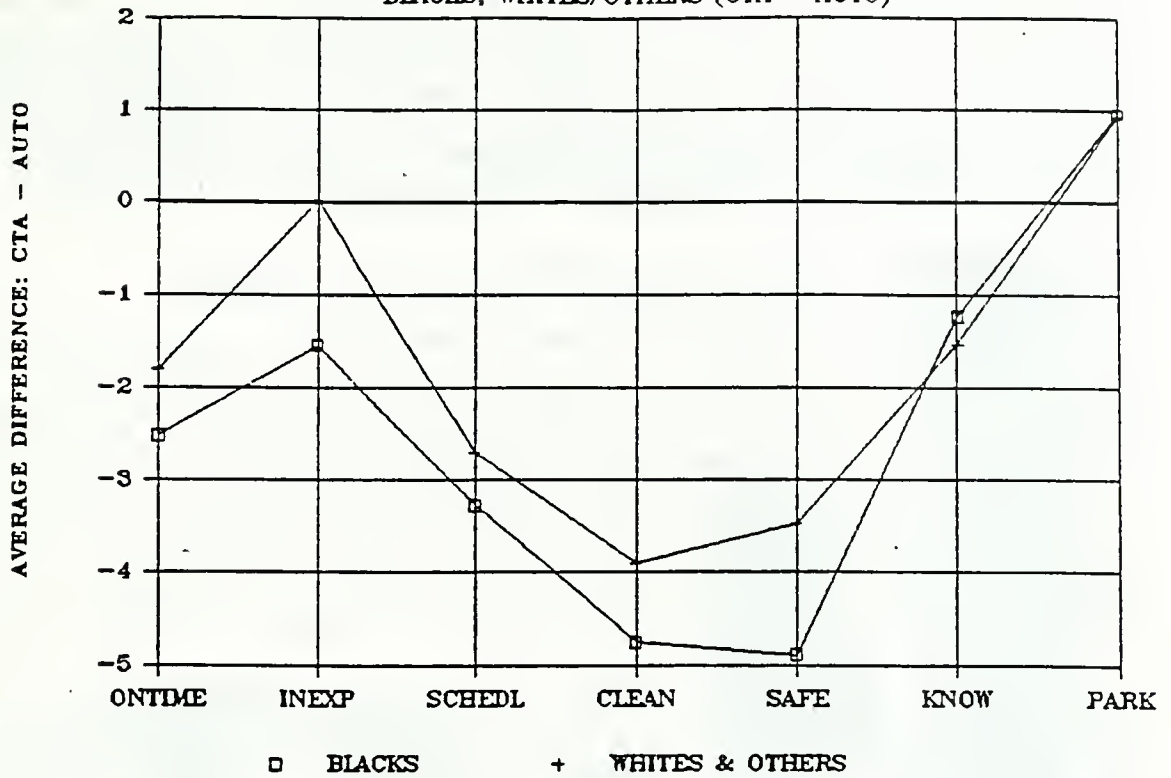
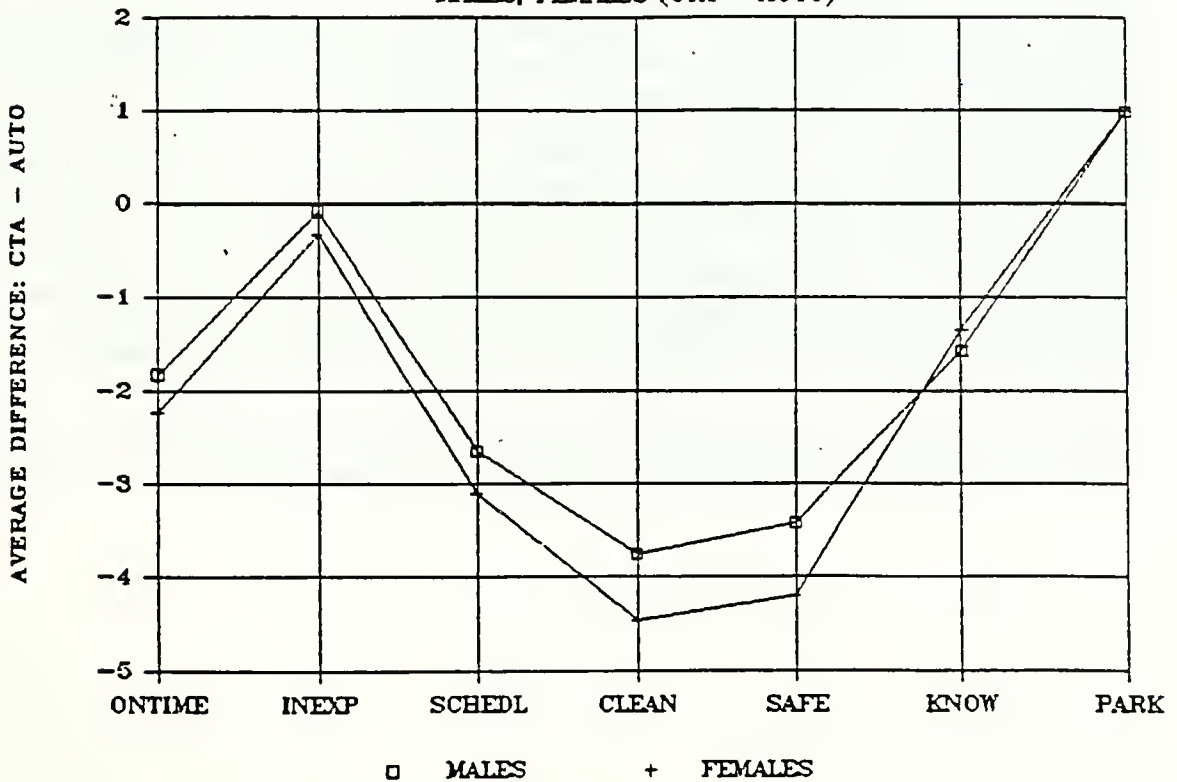


FIGURE 6. RATINGS DIFFERENCES

MALES, FEMALES (CTA - AUTO)



The statistical analysis was accomplished by estimating a mode choice model which is a mathematical formula giving the probability of a traveler choosing each of the available modes of travel. The model includes measures of the characteristics of the modes and travelers multiplied by coefficients which reflect their importance in the choice of mode. The components of the model are discussed first in terms of the attributes of travel service and then in terms of individual and trip characteristics.

THE EFFECT OF SERVICE ATTRIBUTES ON CTA RIDERSHIP

The analysis indicates that, of the seven attributes considered, five have an important and positive effect on travelers' mode choice. The relative importance of these attributes (derived from model estimation) is illustrated in Figure 7. These results must be interpreted with some care. For example, the association between knowledge of the system and travel choice may reflect a lack of interest in using transit as well as lack of knowledge as an impediment to transit use. Similarly, while the number of stops influences mode choice, it is also likely that the mode choice influences people's willingness to undertake multi-stop tours. Nonetheless, these results provide a useful guide to identification of attributes which are important in the transit versus auto choice.

The "cost and availability of parking," an attribute which applies to the auto modes only, is very important. This result is consistent with findings in other urban environments. "Knowing" the means of travel is also very important in mode choice. Also, the attributes of "getting to your destination quickly and on time," "easy to set your own schedule" and "safe from crime" have an effect on mode choice. However, "inexpensive to use" and "clean and comfortable" do not appear to have any positive effect on mode choice. The lack of importance of "inexpensive" is consistent with other studies which indicate that, in the range of the alternatives available, cost is not an important attribute except with respect to parking cost, which is accounted for by the "cost and availability of parking" attribute.

The effect of changes in these attributes can be seen by estimating the change in CTA bus and el ridership if both bus and el service were changed by an amount which would increase average attribute rating by one unit. The reasonableness of achieving a specific improvement in bus and el perceptions is difficult to assess. However, one way to evaluate this is to consider the improvement relative to auto. For example, an increase of one rating unit in "getting to your destination quickly and on time" would improve CTA service ratings by approximately half of the current difference between CTA and auto (see Figure 2). Similarly, a one unit improvement in "safe from crime" would improve CTA by approximately one-quarter of the current difference between CTA and auto. It is also possible to develop an empirical relationship between measurable service characteristics and traveler perceptions if sufficient service data are available on objective service measures.

With this limitation in mind, the effect of one unit improvement of CTA (bus and el) for each of the important attributes is shown in Table 1.

FIGURE 7.

IMPORTANCE OF MODE SERVICE ATTRIBUTES

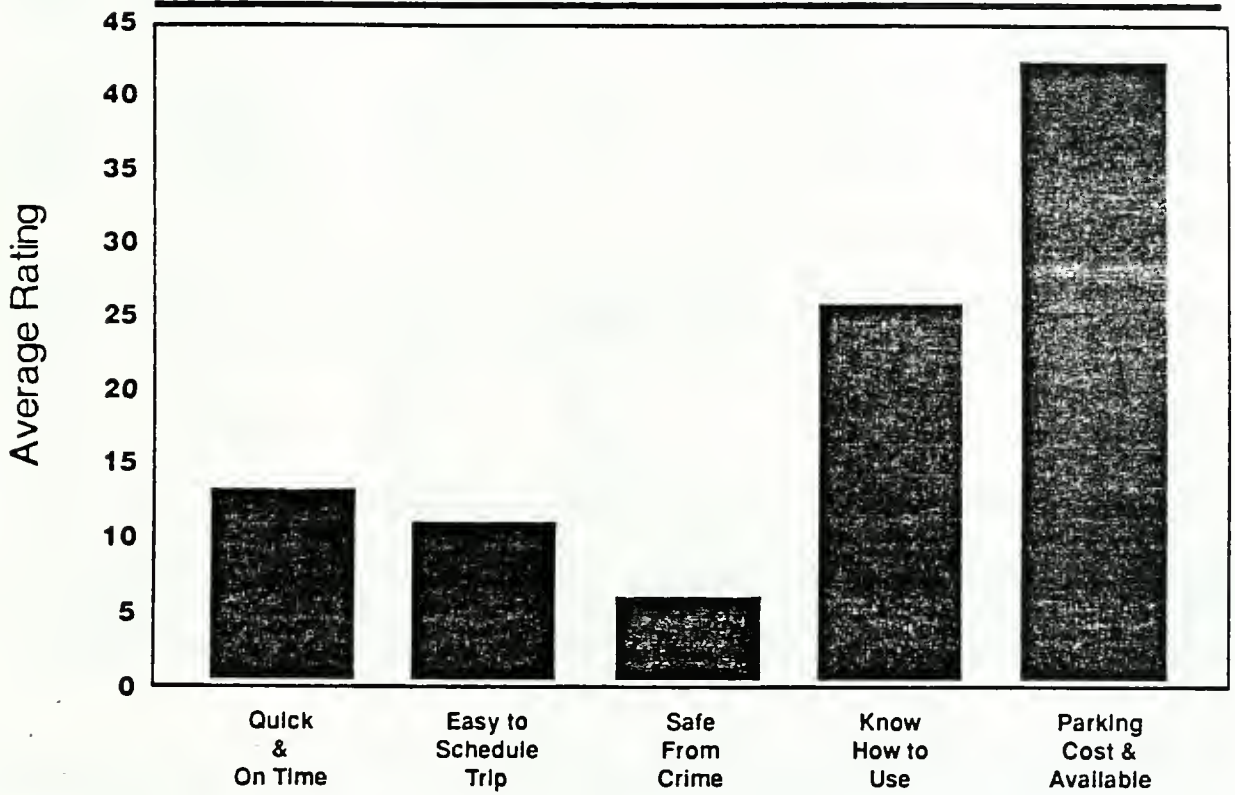


Table 1

EFFECT OF SERVICE IMPROVEMENT ON MODE SHARE (%)

	BASE CASE SHARE	MODE SHARE DUE TO ONTIME	IMPROVEMENT SCHEDL	IN: SCRIME	KNOW
CTA BUS	23.1%	24.1%	24.0%	23.6%	25.1%
CTA EL	10.4	10.8	10.8	10.6	11.3
DRIVERS	52.3	51.1	51.3	51.7	50.0
PASSENGER	14.3	13.9	14.0	14.1	13.6

	CHANGE IN MODE SHARE (%) DUE TO IMPROVEMENT IN*:			
	ONTIME	SCHEDL	SCRIME	KNOW
CTA BUS	4.6%	3.9%	2.2%	8.9%
CTA EL	4.6	3.9	2.2	8.9
DRIVERS	-2.3	-2.0	-1.1	-4.4
PASSENGER	-2.3	-2.0	-1.1	-4.4

These projected changes are consistent with the importance results depicted in Figure 7. In addition, they give some idea about the potential to increase CTA ridership if improvements can be made in CTA service and described to travelers so that their perceptions of CTA are improved.

We use the same approach to examine the effect of changes in parking cost perception on CTA ridership by considering a one unit decrease in the rating of "cost and availability of parking" for both auto modes. While decreasing parking quality is not an option available to the CTA, this analysis indicates the extent to which parking quality deterioration in certain areas may affect CTA markets. The effect of such deterioration in parking quality is illustrated in Table 2.

* Changes in bus and el shares are identical due to the assumed identical improvement in bus and el ratings and for car driver and car passenger due to the assumed identical no change in ratings.

Table 2

EFFECT OF PARKING DETERIORATION ON MODE SHARE

	CHANGE IN AUTO PARKING		
	BASE CASE SHARE	NEW SHARE	CHANGE IN SHARE (%)
CTA BUS	23.1%	26.5%	14.8%
CTA EL	10.4	11.9	14.8
DRIVERS	52.3	48.4	-7.4
PASSENGER	14.3	13.2	-7.4

These changes are particularly large, reflecting the large importance of difficulty in finding reasonably priced parking on the choice of CTA.

CONCLUSIONS

We conclude that it is important to maintain fast and reliable transit service and adequate frequency of service to provide riders with good scheduling flexibility. Further, it is important to provide good information about transit service and how to use the system. Finally, constraints on downtown parking can be exploited to encourage CTA ridership. In addition, efforts to improve safety on the system may contribute to small increases in CTA ridership.

TECHNICAL REPORTS
STRATEGIC PLANNING DEPARTMENT

<u>No.</u>	<u>Title</u>	<u>Date</u>
SP88-01	Pass Discounting Practices in North America, 1987	March, 1988
SP88-02	Market Analysis of CTA Fare Structure Options: Summary Report	August, 1988
SP88-03	1987 Trip Diary Survey: Pass vs. Cash-Fare	May, 1988
SP88-04	Lincoln Park Recreational Travel Survey	November, 1988
SP88-05	Operation B.U.S. Survey Report	December, 1988
SP88-06	QuikPass User Surveys	April, 1989
SP89-01	1988 Ridership Review	May, 1989
SP89-02	CTA Household Travel Market Survey: Summary Report	April, 1989
SP89-03	Survey of Sunday Travel Patterns	March, 1989
SP89-04	Week-End Recreational Travel: Summary of Three Surveys	March, 1989
SP89-05	Red Carpet Service Survey Report	April, 1989
SP89-06	CTA 1986-88 Service Delivery (Title VI)	May, 1989
SP89-07	Characteristics and Transportation Attitudes of Downtown Chicago Pedestrians	April, 1989
SP89-08	1988 Market Surveys and Analysis Project: Executive Summary	June, 1989
SP89-09	Results of CTA Household Travel Market Survey	August, 1989

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